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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/759,083	01/20/2004	Yasuji Hiramatsu	247814US90CONT	7152
22850	7590	09/30/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			WILLIAMS, ALEXANDER O	
			ART UNIT	PAPER NUMBER
			2826	

DATE MAILED: 09/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/759,083	Applicant(s) HIRAMATSU ET AL.	
	Examiner Alexander O. Williams	Art Unit 2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/22/04 & 4/16/04</u> . | 6) <input checked="" type="checkbox"/> Other: <u>IDS 1/20/04</u> . |

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Serial Number: 10/759083 Attorney's Docket #: 247814US90CONT

Filing Date: 1/20/2004; claimed foreign priority to //9

Applicant: Hiramatsu et al.

Examiner: Alexander Williams

This application is a 371 of PCT/JPO1/01787 filed 3/7/2001.

Applicant's Pre-Amendment filed 1/20/04 has been acknowledged.

Applicant's election of the species of figures 3 and 4 (claims 6 to 37), filed 9/8/05, has been acknowledged.

This application contains claims 5 to 8 drawn to an invention non-elected with traverse.

Claims 1 to 5 have been cancelled.

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Applicant is reminded of the proper content of an abstract of the disclosure.

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A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The disclosure is objected to because of the following informalities: Applicant's related application information should be updated.

Appropriate correction is required.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 6 to 10, 12 to 26 and 28 to 37, **insofar as they can be understood**, are rejected under 35 U.S.C. § 102(b) as being anticipated by Katsuda et al. (U.S. Patent # 6,001,760).

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6. Katsuda et al. (figures 1 to 30b) specifically figure 29 show a ceramic heater having a ceramic substrate **11** with a conductor **19,20** inside of the ceramic substrate, wherein said ceramic substrate is sintered and has a fractured section thereof having intergranular fracture (**see column 26, line 65 to column 28, line 40**).

(57) Metals can be embedded in the aluminum nitride sintered body according to the present invention. Articles embedded with an electrode can be used preferably particularly in an environment where impurities are abominated. Examples of such applications include: ceramic electrostatic chucks; ceramic heaters; and high frequency electrode apparatuses. The use for electrostatic chucks is particularly suitable.

7. The ceramic heater according to claim 6, Katsuda et al. show wherein an average diameter of ceramic grains of said fractured section is 0.5 to 10 mm (see column 28, lines 61-64).

8. The ceramic heater according to claim 6, Katsuda et al. show wherein an impurity element is locally distributed in boundaries of ceramic grains of said fractured section.

9. The ceramic heater according to claim 6, Katsuda et al. show wherein the thermal conductivity of said ceramic substrate is 100 W/m·K or more (see column 30, lines 24-26).

10. The ceramic heater according to claim 6, Katsuda et al. show wherein said ceramic substrate has a diameter of 200 mm or more (see column 27, lines 56-66).

12. The ceramic heater according to claim 6, Katsuda et al. show wherein said ceramic substrate has a thickness of 25 mm or less (see column 28, lines 20-32).

13. The ceramic heater according to claim 8, Katsuda et al. show wherein said impurity element is selected from the group consisting of boron, sodium, calcium, silicon and a sintering aid (see column 27, lines 30-55).

14. The ceramic heater according to claim 8, Katsuda et al. show wherein said impurity element is selected from the group consisting of Si, Y and O (see column 27, lines 30-55).

15. The ceramic heater according to claim 6, Katsuda et al. show wherein said ceramic substrate has an impurity-existent area where an impurity element is locally distributed in triple points of crystal grains, and an impurity element-nonexistent area where an impurity is not locally distributed in the triple points of the crystal grains.

16. The ceramic heater according to claim 15, Katsuda et al. show wherein said impurity element is selected from the group consisting of boron, sodium, calcium, silicon and a sintering aid.
17. The ceramic heater according to claim 15, Katsuda et al. show wherein said impurity element is selected from the group consisting of Si, Y and O.
18. The ceramic heater according to claim 6, Katsuda et al. show wherein said ceramic substrate comprises a nitride ceramic, a carbide ceramic or an oxide ceramic.
19. The ceramic heater according to claim 6, Katsuda et al. show wherein said ceramic substrate comprises aluminum nitride or silicon carbide.
20. The ceramic heater according to claim 6, Katsuda et al. show wherein said ceramic heater is capable of use at a temperature of 150°C to 200°C.
21. Katsuda et al. show a semiconductor producing/examining device comprising the ceramic heater claimed in Claim 6.
22. Katsuda et al. (figures 1 to 30b) specifically figure 29 show a ceramic heater having a ceramic substrate **11** with a conductor **20** on a surface of the ceramic substrate, wherein said ceramic substrate is sintered and has a fractured section thereof having intergranular fracture (**see column 26, line 65 to column 28, line 40**).

(57) Metals can be embedded in the aluminum nitride sintered body according to the present invention. Articles embedded with an electrode can be used preferably particularly in an environment where impurities are abominated. Examples of such applications include: ceramic electrostatic chucks; ceramic heaters; and high frequency electrode apparatuses. The use for electrostatic chucks is particularly suitable.

23. The ceramic heater according to claim 22, Katsuda et al. show wherein an average diameter of ceramic grains of said fractured section is 0.5 to 10 mm (see column 28, lines 61-64).
24. The ceramic heater according to claim 22, Katsuda et al. show wherein an impurity element is locally distributed in boundaries of ceramic grains of said fractured section.
25. The ceramic heater according to claim 22, Katsuda et al. show wherein the thermal conductivity of said ceramic substrate is 100 W/m·K or more.
26. The ceramic heater according to claim 22, Katsuda et al. show wherein said ceramic substrate has a diameter of 200 mm or more(see column 27, lines 56-66).

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28. The ceramic heater according to claim 22, Katsuda et al. show wherein said ceramic substrate has a thickness of 25 mm or less(see column 27, lines 20-32).
29. The ceramic heater according to claim 24, Katsuda et al. show wherein said impurity element is selected from the group consisting of boron, sodium, calcium, silicon and a sintering aid.
30. The ceramic heater according to claim 24, Katsuda et al. show wherein said impurity element is selected from the group consisting of Si, Y and O.
31. The ceramic heater according to claim 22, Katsuda et al. show wherein said ceramic; substrate has an impurity-existent area where an impurity element is locally distributed in triple points of crystal grains, and an impurity element-nonexistent area where an impurity is not locally distributed in the triple points of the crystal grains.
32. The ceramic heater according to claim 31, Katsuda et al. show wherein said impurity element is selected from the group consisting of boron, sodium, calcium, silicon and a sintering aid (see column 27, lines 30-55).
33. The ceramic heater according to claim 31, Katsuda et al. show wherein said impurity element is selected from the group consisting of Si, Y and O (see column 27, lines 30-55).
34. The ceramic heater according to claim 22, Katsuda et al. show wherein said ceramic substrate comprises a nitride ceramic, a carbide ceramic or an oxide ceramic.
35. The ceramic heater according to claim 22, Katsuda et al. show wherein said ceramic substrate comprises aluminum nitride or silicon carbide.
36. The ceramic heater according to claim 22, Katsuda et al. show wherein said ceramic heater is capable of use at a temperature of 150°C to 200°C.
37. Katsuda et al. show a semiconductor producing/examining device comprising the ceramic heater claimed in Claim 22.

Claims 11 and 27, **insofar as they can be understood**, are rejected under 35 U.S.C. § 103(a) as being unpatentable over Katsuda et al. (U.S. Patent # 6,001,760) in view of Natsuhara et al. (U.S. Patent # 6,458,444 B1).

Katsuda et al. show the features of the claimed invention as detailed above, but fails to explicitly show the ceramic substrate has a diameter of 300 micro-meters or more. However, Note that the specification contains no disclosure of either the critical nature of the claimed dimensions or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another

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variable recited in a claim, the Applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Natsuhara et al. is cited for showing a ceramic substrate and polishing method. Specifically, Natsuhara et al. (figures 1 to 10) specifically figure 4 discloses the ceramic substrate has a diameter of 300 micro-meters or more see Table 1, Sample 11 and 12) for the purpose of relatively increasing the surface roughness.

11. The ceramic heater according to claim 6, the combination with Natsuhara et al. showing wherein said ceramic substrate has a diameter of 300 mm or more.

27. The ceramic heater according to claim 22, the combination with Natsuhara et al. showing show wherein said ceramic substrate has a diameter of 300 mm or more.

Therefore, it would have been obvious to one of ordinary skill in the art to use Natsuhara et al.'s substrate diameter to modify Katsuda et al.'s substrate for the purpose of relatively increasing the surface roughness.


The listed references are cited as of interest to this application, but not applied at this time.

Field of Search	Date
U.S. Class and subclass: 257/703,700,701,758,705,707,728,758,620 219/270,267-269,552,553,444.1,460.1,544 313/118 361/234 428/689,698 501/98.4,152 279/128	9/28/05
Other Documentation: foreign patents and literature in 257/703,700,701,758,705,707,728,758,620 219/270,267-269,552,553,444.1,460.1,544 313/118 361/234 428/689,698 501/98.4,152 279/128	9/28/05
Electronic data base(s): U.S. Patents EAST	9/28/08

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander O. Williams whose telephone number is (571) 272 1924. The examiner can normally be reached on M-F 6:30AM-7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272 1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Alexander O Williams
Primary Examiner
Art Unit 2826

AOW
9/29/05